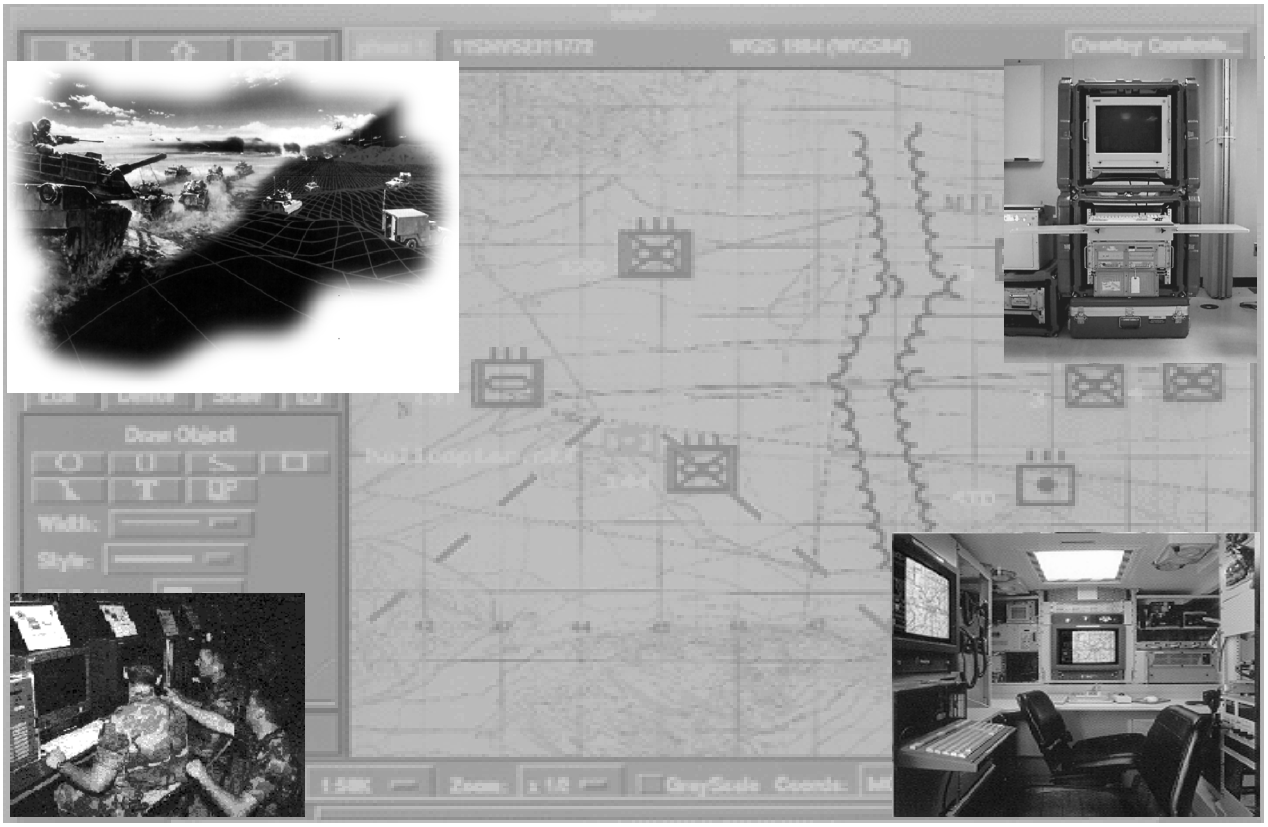
ALL SOURCE ANALYSIS SYSTEM (ASAS)



Army ACAT II Program

Total Number of Systems:	548 Block II ACE 1,627 RWS
Total Program Cost (TY$):	$613M (FY99-FY05)
Cost Per Heavy Division (TY$):	$8M
Full-rate production:	FY01

Prime Contractor

Lockheed Martin Mission Systems

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2010

Information superiority underpins the operational concepts outlined in ***Joint Vision 2010***. Intelligence provided by the All Source Analysis System (ASAS) allows commanders to identify key points for ***dominant maneuver*** and find high priority targets for ***precision targeting***. ASAS contributes to attaining information superiority through a network of computer workstations that process and exchange sensor data, fuse multi-source data into a single intelligence picture, and support management of intelligence sensors. ASAS is tactically deployable to support intelligence and electronic warfare operations at battalion through echelons above corps.

BACKGROUND INFORMATION

ASAS requirements were approved in 1986. Subsequently, the requirements were structured so that ASAS could be developed, acquired, and fielded in discrete increments or blocks. ASAS Block I successfully completed OT in 1993 and is fielded to priority divisions and corps throughout the Army. The current development focus is on Block II.

Lockheed Martin Mission Systems is developing ASAS Block II as a series of phased capability packages—a Single Source workstation, a collateral Remote Workstation (RWS), and an integrated Analysis Control Element (ACE). Austin Info Systems is developing an ASAS-Light System hosted on laptops for employment by the battalions. The Single Source workstation was found neither operationally effective nor suitable in a 1997 Limited User Test and was not fielded because of poor analyst performance in identifying objects and answering intelligence requests, significant problems parsing real world messages, software immaturity, and operator workload. To resolve logistics supportability issues with the older Block I single source hardware and resolve Y2K issues, the Army completed technical tests to demonstrate that existing Block I Single Source software could be hosted on the new Common Hardware.

TEST & EVALUATION ACTIVITY

The ASAS Remote Workstation for brigade and higher echelons completed its two-phase operational test program. The two-phase program implemented initiatives that improved operational testing by combining testing with training during a December 1998 III Corps Warfighter Exercise and combining developmental and operational testing in the March 1999 Limited User Test. A functionality demonstration in May 1999 proved that the software was successfully ported from the hardware tested to a newer version of Common Hardware for fielding. The test program provided sufficient data to evaluate the Remote Workstation. The acquisition and conditional material release decision was made in July 1999.

Developmental testing of the ASAS-Light System for the battalions is scheduled for December 1999. It will be followed by two Limited User Test and culminate in an operational field exercise. Planning continues for the FY01 Analysis Control Element operational test, which will serve as an IOT&E for the ASAS Block II and support a Milestone III production decision.

With the restructure of the Army Battle Command Systems to advance the Battlefield Digitization effort, ASAS has an increased role within this new system structure. Under the revised architecture, ASAS interoperability is achieved using common operating environment application and direct data base to data base exchanges. Therefore, any testing including units above the battalion level must include Army Tactical Command and Control Systems (ATCCS) systems and requisite interoperability between ASAS and Army Battle Command System software. The result is that the spiral development of ASAS must coincide with the multiple spiral developments of all the Battlefield Digitization programs, an enormous challenge for configuration management of software, testing, evaluation, and acquisition reform.

TEST & EVALUATION ASSESSMENT

The Remote Workstation software tools and data base capabilities can support intelligence development, contribute to operations, and attain interoperability. The Field Software Service Support

personnel have the skills to support ASAS Remote Workstation and training prepared the operators to use the system. However, the Remote Workstation did not fully meet the requirements for operational effectiveness and operational suitability, as defined in the Army's Critical Operational Issues. The operational tests revealed concerns with the intelligence synchronization matrix software, interoperability within ATCCS, logistics support of RWS under realistic deployment conditions, software complexity, and sustainment training. However, its current maturity and utility was sufficient for conditional material release to brigade and higher echelons.

The Remote Workstation permitted operators to accomplish their primary functions of intelligence and target development. The operators used the Remote Workstation to receive and access information to address intelligence requirements and nominate targets. RWS supported the tasking and monitoring of intelligence assets using messages, but the intelligence synchronization matrix software that manages their activity did not meet the operational needs of the unit. RWS tools for intelligence preparation of the battlefield are improved from the existing Block I, but technological concerns with display size and resolution limited their contribution. Interoperability was demonstrated with the Block I Analysis Control Element, the Army Tactical Command and Control Systems, and text messages consistent with those expected from intelligence sources and sensors. However, the test revealed interoperability concerns with MCS and other ATTCS systems contributing to the conditional release. Although the Army is working toward complete interoperability through standardization of formats, data bases, etc., ASAS RWS will be fielded into the present environment which lacks these conditions.

The ability to logistically support the Remote Workstation over large areas in accordance with doctrine was not fully demonstrated due to the presence of a large number of contractor support personnel. Future operational tests of ASAS will be required to demonstrate logistics supportability under more realistic deployment conditions. Training prepared operators to use the current software, but the tests identified problems with complexity, software maturity, and the amount of training required to attain and maintain operator proficiency.

CONCLUSIONS, RECOMMENDATIONS, LESSONS LEARNED

Careful planning and focused data collection are necessary prerequisites for successfully combining testing and training. The valuable information obtained during the December 1998 Warfighter Exercise evaluation of the Remote Workstation shows that testers can use these events to acquire data in evaluating systems. The experience gained during the Remote Workstation testing will enhance the quality of upcoming ASAS operational tests.

Software intensive systems provide a unique challenge as they migrate towards newer and faster computer hardware. Performance issues on a hardware platform may be corrected or exacerbated by moving to a newer or different platform. Typically, the migration to different computer hardware occurs after the initial acquisition decision has been made; i.e., after a system (software and hardware) has been assessed as operationally effective and operationally suitable. The decision to upgrade then focuses on whether the new hardware degrades system performance. Future operational testing must include hardware and software upgrades so that the operational test results can inform decision makers to field those upgrades.